CLAIMS

1. A method of epitaxially growing a material on a substrate, the method comprising separately heating precursors to their respective decomposition temperatures at or adjacent a region of the substrate to generate species which are supplied separately to the region and which combine at the region.

2. A method according to claim 1, wherein the species from each precursor are supplied separately to the region in a sequential manner.

3. A method according to claim 1 or claim 2, wherein the species are supplied separately to the region by the relative movement of the substrate to cause the movement of the region with respect to the locations at which decomposition of the precursors occurs.

4. A method according to any of the preceding claims, wherein at least one precursor is supplied separately to the region as a gas stream.

5. A method according to any of the preceding claims, wherein the species are chosen from the Group III and Group V elements.

6. A method according to any of claims 1 to 4, wherein the species are chosen from the Group IV elements.

7. A method according to claim 5, wherein the species comprise Gallium and Nitrogen.

8. A method according to claim 6, wherein the species comprise Carbon and Silicon.

9. A method according to claim 7, wherein one of the precursors is ammonia.

10. A method according to any of the preceding claims, wherein the substrate comprises a semiconductor such as Gallium-Arsenide.

11. A method according to any of the preceding claims, wherein one of the precursors is heated to its decomposition temperature by heating the substrate.

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12. A method according to claim 6, wherein the substrate is heated to the decomposition temperature of the precursor with the lower decomposition temperature.

13. A method according to claim 11 or claim 12, wherein the substrate is heated to a temperature in the range 550-800°C.

14. A method according to any of the preceding claims, wherein one of the precursors is heated to its decomposition temperature at a location adjacent the region.

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15. A method according to claim 14, wherein the precursor is heated to a temperature in the range 400-1800°C.

16. A method according to any of the preceding claims, further comprising moving the region across the substrate.

17. Apparatus for epitaxially growing a material on a substrate, the apparatus comprising a chamber containing a substrate support, the chamber having a first inlet for supplying a first precursor and a second inlet, separate from the first inlet, for supplying a second precursor; and first and second heating means for separately heating the first and second precursors to their respective decomposition temperatures at or adjacent a region of the substrate to generate species which are supplied separately to the region and which combine at the region.

18. Apparatus according to claim 17, wherein the second inlet is formed in a supply conduit located adjacent the substrate support.

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19. Apparatus according to claim 18, wherein the second inlet is in the form of an elongate slot.

20. Apparatus according to claim 18 or claim 19, wherein the second heating means is provided in or adjacent the slot.

21. A method according to any of claims 17 to 20, wherein the second heating means is in the form of a heating wire.

22. Apparatus according to any of claims 17 to 21, wherein the first heating means is located at a position to heat the substrate support.

23. Apparatus according to any of claims 17 to 22, further comprising means for causing relative movement between the substrate support and at least one of the inlets.

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24. Apparatus according to claim 23, when dependent on at least claim 18, wherein a plurality of supply conduits are provided for supplying the same or different precursors to regions on the substrate, the conduits and substrate support being relatively movable to bring the conduits into alignment with different regions.

25. Apparatus according to claim 24, wherein the supply conduits are arranged to supply precursors separately and sequentially to the region.

26. Apparatus according to claim 23 wherein the relative movement between the substrate support and at least one of the inlets is in a transverse manner.

27. Apparatus according to claim 23 wherein the relative movement between the substrate support and at least one of the inlets is in a rotational manner.